CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/BTR/W.No.13/CSR-08/407a/CEMENT/2017-18 Date: 08.08.2017

TEST REPORT ON CEMENT

*** Customer**	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
*** Name of Work**	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
*** Reference**	:	EE/DD/WO/126/2016-17 Dated: 21.02.2017
*** Sample ID**	:	Cement
Sample Received on	:	05.08.2017
Period of Testing	:	05.08.2017 to 08.08.2017

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1988 (RA-2014)	28.00 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988 (RA-2014)	155 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1988 (RA-2014)	460 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) 1988 (RA-2014)	1 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants & Engineers Bangalore

Note:

⇒ The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

AE-13

****

VIDYARANI P.K.
Technical Manager

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

CE/BBMP/BTR/W.No.13/CSR-08/407a/Pre Slab/2017-18

13.09.2017

22-08-2017

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CORE

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
* Name of work	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
* Reference	:	EE/DD/WO/126/2016-17 Dated: 21.02.2017
* Sample ID	:	Precast Slab
* Grade of Concrete	:	M_{20}
Techinical Reference	:	IS:516-1959 (RA- 2013), SP-24:1983.
Sample Received on	:	08.09.2017 18.08.2017
Date of Testing	:	13.09.2017

Sl. No	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	79.00	0.398	2565.82	1.58	0.955	30.18	15.37	16.60	17.39	21.74
2	50.00	81.00	0.402	2527.62	1.62	0.959	32.68	16.64	17.98	17.24	21.55
3	50.00	82.00	0.408	2534.06	1.64	0.961	34.50	17.57	18.98	18.24	22.80

* Information is furnished by the Customer/Representative

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

VIDYARANI P.K.
Technical Manager

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/BTR/W.No.13/BC/Stability/2017-18 17.10.2017

TEST REPORT ON MARSHALL STABILITY OF MIX

*** Customer**	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
***Name of the Work**	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
***Reference**	:	EE/DD/WO/126/2016-17 Dated: 21.02.2017
*** Source**	:	Hot mix Plant, Bangalore
*** Type of Mix**	:	Bituminous Concrete
Date of Testing	:	17.10.2017

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshall Stability, Kn	9.10	9.15	9 Kn (min)
2	Marshall flow, mm	2.25	3.45	2 – 4
3	Percent air voids in Mineral Aggregate	3.50	4.10	3 – 6
4	Voids in Compacted Mix	13.45	14.05	13 - 15
5	Percent Voids filled with Bitumen	67.20	68.95	65 - 75
6	Density, g/cc	2.27	2.26	--

*Information is furnished by the Customer/Representative.

Note:

⇒ The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/BTR/W.No.13/BC/Agg/2017-18 17.10.2017

TEST REPORT ON GRADATION OF AGGREGATE

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
* Name of Work	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
*Reference	:	EE/DD/WO/126/2016-17 Dated: 21.02.2017
* Sample ID	:	Bituminous Concrete
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Hot mix plant, Bangalore
Date of Testing	:	17.10.2017

Total Weight of Sample: **5250** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per `MORTH 500-18
13.2	780	14.86	14.86	85.14	79 - 100	
9.5	535	10.19	25.05	74.95	70 - 88	
4.75	655	12.48	37.52	62.48	53 - 71	
2.36	595	11.33	48.86	51.14	42 - 58	
1.18	530	10.10	58.95	41.05	34 - 48	
0.600	555	10.57	69.52	30.48	26 - 38	
0.300	425	8.10	77.62	22.38	18 - 28	
0.150	225	4.29	81.90	18.10	12 - 20	
0.075	425	8.10	90.00	10.00	4 - 10	

Total Weight of Sample: **5200** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH 500-18
13.2	650	12.50	12.50	87.50	79 - 100	
9.5	660	12.69	25.19	74.81	70 - 88	
4.75	680	13.08	38.27	61.73	53 - 71	
2.36	560	10.77	49.04	50.96	42 - 58	
1.18	690	13.27	62.31	37.69	34 - 48	
0.600	565	10.87	73.17	26.83	26 - 38	
0.300	385	7.40	80.58	19.42	18 - 28	
0.150	290	5.58	86.15	13.85	12 - 20	
0.075	325	6.25	92.40	7.60	4 - 10	

AE-13

*Information is furnished by the Customer/Representative.

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No : CTCE/BBMP/BTR/W.No.13/BC/Bitumen/2017-18 17.10.2017

TEST REPORT ON BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
* Name of Work	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
*Reference		EE/DD/WO/126/2016-17 Dated: 21.02.2017
* Sample ID	:	Roadsat BHEL Mini Colony in Ward No. 13, BBMP, Bangalore
Technical Reference	:	IS 2386 and IRC:SP:11-1984
Date of Testing	:	17.10.2017

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	32.17	6.81	6.81	93.19	79-100
9.5	30.17	6.39	13.19	86.81	70-88
4.75	80.36	17.01	30.20	69.80	53-71
2.36	64.2	13.59	43.79	56.21	42-58
1.18	50.28	10.64	54.43	45.57	34-48
0.6	56.3	11.92	66.34	33.66	26-38
0.3	51.28	10.85	77.20	22.80	18-28
0.15	36.2	7.66	84.86	15.14	12-20
0.075	40.2	8.51	93.37	6.63	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	35.17	7.46	7.46	92.54	79-100
9.5	50.26	10.66	18.12	81.88	70-88
4.75	60.21	12.77	30.89	69.11	53-71
2.36	70.15	14.88	45.77	54.23	42-58
1.18	62.54	13.26	59.03	40.97	34-48
0.6	45.21	9.59	68.62	31.38	26-38
0.3	33.24	7.05	75.67	24.33	18-28
0.15	30.14	6.39	82.06	17.94	12-20
0.075	50.2	10.65	92.71	7.29	4-10

*Information is furnished by the Customer/Representative.

Note: AE-13

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/BBMP/BTR/W.No.13/BC/Bitumen/2017-18 17.10.2017

TEST REPORT ON BITUMEN CONTENT OF BITUMINOUS CONCRETE MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
* Name of Work	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
*Reference	:	EE/DD/WO/126/2016-17 Dated: 21.02.2017
* Sample ID	:	Roadsat BHEL Mini Colony in Ward No. 13, BBMP, Bangalore
Technical Reference	:	IRC:SP:11-1984
Date of Testing	:	17.10.2017

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472.5	471.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	27.5	28.50
7. Bitumen content in %	5.50	5.70
8. Average	**5.60**	

*Information is furnished by the Customer/Representative.

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/BTR/W.No.13/BC/Sp_Wa/2017-18 17.10.2017

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
* Name of Work	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
*Reference	:	EE/DD/WO/126/2016-17 Dated: 21.02.2017
* Sample ID	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -3)-1963 (RA-2011)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	17.10.2017

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2009	2010	2009	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1239	1238	1254	
4	Weight of saturated surface dry aggregate in air	W_3 g	2004	2007	2009	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	765	769	755	
6	Weight of oven dried aggregate	W_4 g	1996	1998	2000	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.609	2.598	2.649	2.619
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.637	2.629	2.681	2.649
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.40%	0.45%	0.45%	0.43%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-560 079.

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/BTR/W.No.13/BC/Stripping/2017-18 17.10.2017

TEST REPORT ON STRIPPING VALUEOF ROAD AGGREGATES (STATIC IMMERSION TEST)

*** Customer**	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
*** Name of Work**	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
***Reference**	:	EE/DD/WO/126/2016-17 Dated: 21.02.2017
Technical Reference	:	IS: 6241
*** Type of Mix**	:	Bituminous Concrete
Date of Testing	:	17.10.2017

Type of binder : 80/100
Percentage of binder used : 5.00% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.00 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.0	3.17	96.83
2	3.2		
3	3.3		

*Information is furnished by the Customer/Representative.

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Concrete is 95%

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

AG-13

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross, 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/BTR/W.No.13/BC/Shape.T/2017-18 16.10.2017

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive** Engineer, Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
* Name of Work	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
*Reference	:	EE/DD/WO/126/2016-17 Dated: 21.02.2017
* Sample ID	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	16.10.2017

Sl.No.	Description	Result
1	Flakiness Index	11.20%
2	Elongation Index	13.65%
3	Combined Flakiness & Elongation Index	24.85%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 30%

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

AE-13

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross, 3rd Stage, 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Lab No.:CTCE/BBMP/BTR/W.No.13/BC/AIV/2017-18 16.10.2017

TEST REPORT ON IMPACT VALUE OF AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
* Name of Work	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
*Reference		EE/DD/WO/126/2016-17 Dated: 21.02.2017
* Sample ID	:	Hot mix plant, Bangalore.
* Type of Mix	:	Bituminous Concrete
Technical Reference	:	IS: 2386 (Part- 4)-1963 (RA-2011)
Date of Testing	:	16.10.2017

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	388	392	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85	90	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	303	302	
4	Aggregate Impact value = percent fines 100* (W2/W1) percent	21.91	22.96	**22.43**

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

AE-13

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/BTR/W.No.13/CSR-08/407a/QB(BC)/2017-18 16.10.2017

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

*** Customer**	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
*** Name of work**	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
***Reference**	:	EE/DD/WO/126/2016-17 Dated: 21.02.2017
*** Sample ID**	:	Bitumen
Source/ Location	:	Hot Mix Plant, Bangalore.
Sample Received on	:	15.10.2017
Period of Testing	:	15.10.2017 to 16.10.2017

The results of the tests conducted on the bitumen sample are as follows:

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2014)	86	80 to 100
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2014)	48	Min. 40
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2014)	100 >	Min. 75
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2014)	312	Min. 220

* Information is furnished by the Customer/Representative

Note:

⇒ This test report shall not be reproduced except in full, without written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

VIDYARANI P.K.
Technical Manager

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/BTR/W.No.13/WMM/Shape.T/2017-18 09.10.2017

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

*** Customer**	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
*** Name of Work**	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
*** Reference**	:	EE/DD/WO/126/2016-17 Dated: 21.02.2017
*** Sample ID**	:	Wet Mix Macadam
Technical Reference	:	IS 2386(Part 1) 1963 (RA 2011)
Date of Testing	:	09.10.2017

Sl.No.	Description	Result
1	Flakiness Index	11.35%
2	Elongation Index	13.28%
3	Combined Flakiness & Elongation Index	24.63%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross, 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/BTR/W.No.13/WMM/AIV/2017-18 09.10.2017

TEST REPORT ON IMPACT VALUE OF AGGREGATE

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
* Name of Work	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
* Reference	:	EE/DD/WO/126/2016-17 Dated: 21.02.2017
* Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS : 2386(Part -4)-1963 (RA-2011)
Date of Testing	:	09.10.2017

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	298	297	
4	Aggregate Impact value = percent fines 100* (W2/W1)%	21.58	22.86	22.22

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Wet Mix Macadam is 30%

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

AE-13

****

Civil-tech Consultants & Engineers
#23/14, 7th Cros. 3rd Stage 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Lab No.: CTCE/BBMP/BTR/W.No.13/WMM/Gradation/2017-18 09.10.2017

TEST REPORT ON GRADATION OF WET MIX MACADAM

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
* Name of Work	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
* Reference	:	EE/DD/WO/126/2016-17 Dated: 21.02.2017
Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS 2386 (part-1)1963 (RA-2011)
Date of Testing	:	09.10.2017

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits As per Morth Table 400-13
53	0	0	0	100	100
45	125	125	2.5	97.5	95-100
22.4	1520	1645	32.90	67.10	60-80
11.2	1025	2670	53.40	46.60	40-60
4.75	625	3295	65.90	34.10	25-40
2.36	500	3795	75.90	24.10	15-30
0.600	425	4220	84.40	15.60	8-22
0.075	510	4730	94.60	5.40	0-8

*Information is furnished by the Customer/Representative.

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

Civil-tech Consultants & Engineers
#23/14, 7th Cross, 3rd Stage, 4th Block,
Shakthi Ganapathinagar,
Basaveshwaranagar, Bangalore-560 079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/BTR/W.No.13/CSR-08/407a/Cube/2017-18 02.10.2017

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
* Name of the work	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
* Reference	:	EE/DD/WO/126/2016-17 Dated: 21.02.2017
* Sample ID	:	Covering Slab Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{20}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	02.10.2017

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	04.09.2017	02.10.2017	8.028	488.0	21.69
2	04.09.2017	02.10.2017	8.184	510.4	22.68
3	04.09.2017	02.10.2017	8.309	520.8	23.15

*Information is furnished by the Customer/Representative.

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

VIDYARANI P.K.
Technical Manager

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/BTR/W.No.13/CSR-08/407a/Cube/2017-18 02.10.2017

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. B T Ravikumar,** #129, 3rd Main Road, HVR layout, Magadi main road,Bangalore– 560 079.
* Name of the work	:	Improvements and Asphalting to main and cross roads at BHEL Mini Colony in Ward No.13, in Shettyhalli Sub Division (2nd call) BBMP, Bangalore.
* Reference	:	EE/DD/WO/126/2016-17 Dated: 21.02.2017
* Sample ID	:	Covering Slab Concrete
Technical Reference	:	IS: 516-1959 (RA-2013)
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{20}
Compressive Strength as on	:	28^{th} day
Sample Received on	:	02.10.2017

Sl.No.	Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	04.09.2017	02.10.2017	8.127	480.2	21.34
2	04.09.2017	02.10.2017	8.269	509.2	22.63
3	04.09.2017	02.10.2017	8.410	523.0	23.24

*Information is furnished by the Customer/Representative.

Civil-Tech Consultants & Engineers Bangalore

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

****

VIDYARANI P.K.
Technical Manager

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com